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William F. O'Keefe
Vice President

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Central Docket Section (A-130)
U. S. Environmental Protection Agency
401 M Street, S.W.
Washington, D.C. 20460

Re: Docket No. OAQPS-A-79-32
Grant of Petition for Reconsideration and Proposed Rules
Standards of Performance for New Stationary Sources, Equipment Leaks of VOC

The American Petroleum Institute (API) welcomes this opportunity to comment on EPA's proposal to modify the industrial flare provisions of the New Source Performance Standards (NSPS) announced at 50 Fed. Reg. 14941-14945 (April 16, 1985).

EPA proposes to revise the standards by:

1. increasing the allowable exit velocity while specifying a minimum heating value;

2. clarifying how actual exit velocity is to be determined;

3. assuring that the operating requirements do not apply to emergency, startup or shutdown conditions;

4. incorporating the flare requirements into the NSPS General Provisions so that they would apply to all pertinent standards.

API supports EPA's approach to the use of industrial flares which provides practical criteria for their application. However, the proposed revision does contain provisions that might inhibit the application of such flares. The comments that follow suggest ways to rectify these shortcomings.

Representative Flare Performance

It is apparent that EPA does not intend to impose exit velocity limits to emergencies, or startups and shutdowns. However, specific language to that effect did not appear in the original regulation or its preamble. Thus, API is pleased to see that exclusion clarified in this proposal. In addition, we presume that the provision regarding visible emission not exceeding 5 minutes during any 2 consecutive hours also does not apply during emergencies, startups and shutdowns. This exemption also should be cited in the preamble.

Flare Requirements in General Provisions

If there are to be flare requirements in several NSPS and NESHAPs, as is currently the case, then they should appear in the General Provisions and only be referenced in the appropriate subparts of 40 C.F.R. Part 60. This would assure standardization of requirements and facilitate any future revision of the flare provisions.

Exit Velocity and Heating Value

In previous comments on the refinery NSPS (Docket No. A-80-44, March 21, 1983), API maintained that operating limits on flares were not necessary. We stated that these highly efficient safety devices were capable of meeting EPA's level of performance when operating normally. There is no evidence of steam-assisted flares becoming inefficient at high velocities. Thus, the proposed increase in velocity from the original 60 ft/sec to 400 ft/sec (for gases above 1000 Btu/scf) is a move in the right direction. However, a 400 ft/sec limitation is no more justified than the one it replaces. For example, there are flares designed for normal operation at sonic velocity which, for a 1000 Btu/scf mixture of hydrocarbon gases, would be approximately 1500 feet per second. As another example, hydrogen is known to burn with stability at very high velocities, yet its heating value is only 275 Btu/scf. Furthermore, EPA sponsored testing at 400 ft/sec has demonstrated high combustion efficiency at gas heating values well below 1000 Btu/scf. Thus, neither velocity nor heating value restrictions are appropriate.

There are two petroleum industry members on the EPA Technical Advisory Panel for the industrial flare efficiency research. At the first meeting of the panel in 1981, those members indicated that combustion efficiency is high as long as the flare is burning normally. This position was confirmed in the EPA report, "Evaluation of the Efficiency of Industrial Flares: Test Results," May 1984. The report indicates that:

1. Flares with stable flames burn hydrocarbon gases with greater than 98 percent combustion efficiency.

2. Flares with unstable flames (on the verge of extinguishing) may have low combustion efficiencies.

Thus, stability, i.e., the maintenance of a flame, is the necessary and sufficient condition for high combustion efficiency. It is important to note that flame liftoff from the flare tip is not an indication of flame instabililty or combustion inefficiency. The EPA test program has shown that lifted flames are efficient. Thus, the maintenance of a flame is an observable characteristic that guarantees high combustion efficiency.

API concludes that the limits in both the present and proposed rules are unnecessary and inappropriate. Therefore, we urge EPA to accept the concept of flame stability as an indication of efficient flare operation and delete the requirements in the pertinent standards.

Sincerely,

William F. O'Keefe
Vice President